



## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2014-0749; Directorate Identifier 2014-NM-051-AD; Amendment 39-18118; AD 2015-05-08]**

**RIN 2120-AA64**

**Airworthiness Directives;** Lockheed Martin Corporation/Lockheed Martin Aeronautics Company Airplanes

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain Lockheed Martin Corporation/Lockheed Martin Aeronautics Company Model 382, 382B, 382E, 382F, and 382G airplanes. This AD was prompted by an evaluation by the design approval holder (DAH) indicating that the upper and lower rainbow fittings on the outer wing are subject to widespread fatigue damage (WFD). This AD requires repetitive inspections of the upper and lower rainbow fittings on the outer wing to detect cracks propagating from fasteners attaching the fittings to skin panels, and related investigative and corrective actions if necessary; and replacement of the upper and lower rainbow fittings on the outer wing. We are issuing this AD to prevent fatigue cracking of the upper and lower rainbow fittings on the outer wing and skin-panel-to-fitting fastener holes, which could result in reduced structural integrity of the airplane and possible separation of the wing from the airplane.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** For service information identified in this AD, contact Lockheed Martin Corporation/Lockheed Martin Aeronautics Company, Airworthiness Office, Dept. 6A0M, Zone 0252, Column P-58, 86 S. Cobb Drive, Marietta, GA 30063; telephone 770-494-5444; fax 770-494-5445; email [ams.portal@lmco.com](mailto:ams.portal@lmco.com); Internet <http://www.lockheedmartin.com/ams/tools/TechPubs.html>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0749.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0749; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Docket Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Carl Gray, Aerospace Engineer, Airframe Branch, ACE-117A, FAA, Atlanta Aircraft Certification Office (ACO), 1701 Columbia Avenue, College Park, GA 30337; phone: 404-474-5554; fax: 404-474-5606; email: [Carl.W.Gray@faa.gov](mailto:Carl.W.Gray@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain Lockheed Martin Corporation/Lockheed Martin Aeronautics Company Model 382, 382B, 382E, 382F, and 382G airplanes. The NPRM published in the Federal Register on October 16, 2014 (79 FR 62075). The NPRM was prompted by an evaluation by the DAH indicating that the upper and lower rainbow fittings on the outer wing are subject to WFD. The NPRM proposed to require repetitive inspections of the upper and lower rainbow fittings on the outer wing to detect cracks propagating from fasteners attaching the fittings to skin panels, and related investigative and corrective actions if necessary; and replacement of the upper and lower rainbow fittings on the outer wing. We are issuing this AD to prevent fatigue cracking of the upper and lower rainbow fittings on the outer wing and skin-panel-to-fitting fastener holes, which could result in reduced structural integrity of the airplane and possible separation of the wing from the airplane.

### **Comments**

We gave the public the opportunity to participate in developing this AD. We have considered the comment received. The commenter supported the NPRM (79 FR 62075, October 16, 2014).

### **Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD as proposed except for minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (79 FR 62075, October 16, 2014) for correcting the unsafe condition; and

- Do not add any additional burden upon the public than was already proposed in the NPRM (79 FR 62075, October 16, 2014).

### **Related Service Information under 1 CFR part 51**

We reviewed Lockheed Martin Aeronautics Company Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013. The service bulletin describes procedures for inspection and replacement of the upper and lower rainbow fittings on the outer wing, and corrective actions. This service information is reasonably available; see ADDRESSES for ways to access this service information.

### **Costs of Compliance**

We estimate that this AD affects 20 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

#### **Estimated costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
ECSS inspection	24 work-hours X \$85 per hour = \$2,040 per inspection cycle	\$0	\$2,040 per inspection cycle	\$40,800 per inspection cycle
Bolt hole inspection during rainbow fitting replacement	24 work-hours X \$85 per hour = \$2,040	\$0	\$2,040	\$40,800
Replacement of all four rainbow fittings	2,060 work-hours X \$85 per hour = \$175,100	\$28,000	\$203,100	\$4,062,000

We estimate the following costs to do any necessary replacements that would be required based on the results of the inspection. We have no way of determining the number of aircraft that might need these replacements:

### On-condition costs

Action	Labor cost	Parts cost	Cost per product
Replacement of one rainbow fitting	515 work-hours X \$85 per hour = \$43,775	\$7,000	\$50,775

We have received no definitive data that would enable us to provide cost estimates for on-condition actions for cracking of the skin-panel-to-fitting fastener holes specified in this AD.

### Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

(1) Is not a "significant regulatory action" under Executive Order 12866,

- (2) Is not a “significant rule” under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

#### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

#### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

#### **PART 39 - AIRWORTHINESS DIRECTIVES**

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

- 2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

#### **2015-05-08 Lockheed Martin Corporation/Lockheed Martin Aeronautics Company:**

Amendment 39-18118 ; Docket No. FAA-2014-0749; Directorate Identifier 2014-NM-051-AD.

#### **(a) Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

#### **(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to Lockheed Martin Corporation/Lockheed Martin Aeronautics Company Model 382, 382B, 382E, 382F, and 382G airplanes; certificated in any category; having any outer wing serial number 4542 and subsequent, or any manufacturing end product (MEP) replacement outer wing except 14Y series.

**(d) Subject**

Air Transport Association (ATA) of America Code 57, Wings.

**(e) Unsafe Condition**

This AD was prompted by an evaluation by the design approval holder (DAH) indicating that the upper and lower rainbow fittings on the outer wing are subject to widespread fatigue damage (WFD). We are issuing this AD to prevent fatigue cracking of the upper and lower rainbow fittings on the outer wing and skin-panel-to-fitting fastener holes, which could result in reduced structural integrity of the airplane and possible separation of the wing from the airplane.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Repetitive Eddy Current Surface Scan (ECSS) Inspections**

At the later of the times specified in paragraphs (g)(1) and (g)(2) of this AD: Do an ECSS inspection of the left and right outer wing upper and lower rainbow fitting-to-skin-panel attachments to detect cracks propagating from fasteners attaching the fittings to skin panels, and do all applicable related investigative actions, in accordance with the Accomplishment Instructions of Lockheed Martin Aeronautics Company Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013, except as provided by paragraph (j)(1) of this AD. Do all applicable related investigative actions before further flight. If any cracking is found during any inspection required by this paragraph, before further flight, repair the cracking, using a method approved in

accordance with the procedures specified in paragraph (m) of this AD. Repeat the inspection of the left and right outer wing upper and lower rainbow fitting-to-skin-panel attachments thereafter at intervals not to exceed 2,000 flight hours, except as provided by paragraph (l) of this AD.

(1) Before the accumulation of 30,000 total flight hours on any wing.

(2) Within 365 days or 600 flight hours, whichever occurs first, after the effective date of this AD.

**(h) Rainbow Fitting Replacement and Inspections**

At the time specified in paragraph (i) of this AD, do the actions required by paragraph (h)(1) and (h)(2) of this AD.

(1) Do a detailed inspection of the wing faying structure for damage and cracks, and do an automated bolt hole eddy current inspection on all open fastener holes in the mating structure, stiffeners, webs and angles for cracking, in accordance with the Accomplishment Instructions of Lockheed Martin Aeronautics Company Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013, except as provided by paragraph (j)(1) of this AD.

(i) If any damage is found during any inspection required by paragraph (h)(1) of this AD, before further flight, repair the damage, using a method approved in accordance with the procedures specified in paragraph (m) of this AD.

(ii) If any cracking is found during any inspection required by paragraph (h)(1) of this AD, before further flight, repair the cracking, in accordance with the Accomplishment Instructions of Lockheed Martin Aeronautics Company Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013, except as provided by paragraphs (j)(1) and (j)(2) of this AD.

(2) Replace the left and right upper and lower rainbow fittings of the outer wing with new fittings, in accordance with the Accomplishment Instructions of Lockheed



Martin Aeronautics Company Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013.

Note 1 to paragraph (h) of this AD: AD 2012-06-09, Amendment 39-16990 (77 FR 21404, April 10, 2012), is related to the rainbow fitting replacement. AD 2012-06-09 references the Lockheed Martin Model 382, 382B, 382E, 382F, and 382G Series Aircraft Service Manual Publication (SMP), Supplemental Structural Inspection Document (SSID), SMP 515-C-SSID, Change 1, dated September 10, 2010; which contains inspections for the entire Model 382B-H airframe, not just the outer wing. Since installing new rainbow fittings, as required by paragraph (g) of this AD, resets the accumulated service life on certain parts to zero, certain compliance times specified in Table 3 of this SSID would be affected by the installation of new outer wing fittings.

Note 2 to paragraph (h) of this AD: AD 2011-15-02, Amendment 39-16749 (76 FR 41647, July 15, 2011), has requirements for fuel system limitations and critical design configuration control limitations, which might include configuration or parts limitations on areas affected by accomplishment of this AD.

**(i) Compliance Times for Paragraph (h) of this AD**

At the later of the times specified in paragraph (i)(1) and (i)(2) of this AD, do the actions required by paragraph (h) of this AD.

(1) Before the accumulation of 50,000 total flight hours on any wing.

(2) Within 60 days or 100 flight hours, whichever occurs first, after the effective date of this AD.

**(j) Exceptions to Service Information Specifications**

(1) Although Lockheed Martin Aeronautics Company Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013, specifies to submit certain information to the manufacturer, this AD does not include that requirement.

(2) Where Lockheed Martin Aeronautics Company Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013, specifies to contact Lockheed for repair instructions, before further flight, repair using a method approved in accordance with the procedures specified in paragraph (m) of this AD.

**(k) Parts Installation Limitation**

After replacement of the left and right upper and lower rainbow fittings of the outer wing with new fittings, as required by paragraph (h) of this AD, any subsequent rainbow fitting replacements must be done using a method approved in accordance with the procedures specified in paragraph (m) of this AD.

**(l) Outer Wing Flight Hours Adjustment**

For any wing on which the left or right upper and lower rainbow fittings of the outer wing have been replaced with new fittings as required by paragraph (h) of this AD: Before the accumulation of 30,000 flight hours after accomplishing the replacement, do the inspection required by paragraph (g) of this AD and repeat thereafter at the times specified in paragraph (g) of this AD.

**(m) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Atlanta Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in paragraph (n) of this AD.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD if it is approved by a Lockheed Martin Corporation/Lockheed Martin Aeronautics Company Designated Engineering Representative (DER) that has been authorized by the Manager, Atlanta ACO, to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

**(n) Related Information**

For more information about this AD, contact Carl Gray, Aerospace Engineer, Airframe Branch, ACE-117A, FAA, Atlanta Aircraft Certification Office (ACO), 1701 Columbia Avenue, College Park, GA 30337; phone: 404-474-5554; fax: 404-474-5606; email: Carl.W.Gray@faa.gov.

**(o) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Lockheed Martin Aeronautics Company Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013.

(ii) Reserved.

(3) For Lockheed service information identified in this AD, contact Lockheed Martin Corporation/Lockheed Martin Aeronautics Company, Airworthiness Office, Dept. 6A0M, Zone 0252, Column P-58, 86 S. Cobb Drive, Marietta, GA 30063;

telephone 770-494-5444; fax 770-494-5445; email [ams.portal@lmco.com](mailto:ams.portal@lmco.com); Internet  
<http://www.lockheedmartin.com/ams/tools/TechPubs.html>.

(4) You may view this service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:  
<http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Renton, Washington, on March 6, 2015.

Jeffrey E. Duven,  
Manager,  
Transport Airplane Directorate,  
Aircraft Certification Service.

**[4910-13-P]**

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